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|---|--|--|--|--|--|--|--|------------------------------------|--------------------------|
| FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE   |  |  |  |  |  |  |  | AGENT DOCKET NO.<br>ONX-107A       | SERIAL NO.<br>09/810,333 |
| <b>LIST OF PRIOR ART CITED BY APPLICANT</b><br><small>(Use several sheets if necessary)</small> |  |  |  |  |  |  |  | APPLICANT<br>Behrang Behrin et al. |                          |
|   |  |  |  |  |  |  |  | FILING DATE<br>March 14, 2001      | GROUP<br>2831            |

**U.S. PATENT DOCUMENTS**

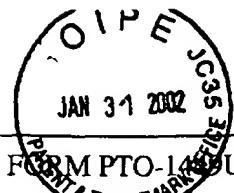
| EXAMINER<br>INITIALS | DOCUMENT NUMBER |   |   |   |   |   |   |   | DATE       | NAME              |  | CLASS | SUBCLASS | FILING DATE |
|----------------------|-----------------|---|---|---|---|---|---|---|------------|-------------------|--|-------|----------|-------------|
| bnd                  | A               | 6 | 3 | 7 | 4 | 0 | 0 | 8 | 4/16/2002  | Solgaard et al.   |  | 385   | 17       | 2/8/2001    |
| EN                   | B               | 6 | 3 | 6 | 0 | 0 | 3 | 5 | 3/19/2002  | Hurst et al.      |  | 385   | 16       | 6/2/2000    |
| DM                   | C               | 6 | 3 | 2 | 9 | 7 | 3 | 7 | 12/11/2001 | Jerman et al.     |  | 310   | 309      | 12/15/1999  |
| DM                   | D               | 6 | 3 | 0 | 1 | 4 | 0 | 3 | 10/9/2001  | Heanue et al.     |  | 385   | 18       | 12/15/1999  |
| DM                   | E               | 6 | 2 | 9 | 6 | 7 | 7 | 9 | 10/2/2001  | Clark et al.      |  | 216   | 66       | 2/22/1999   |
| DM                   | F               | 6 | 2 | 5 | 7 | 0 | 6 | 2 | 7/10/2001  | Rich              |  | 73    | 514.32   | 10/1/1999   |
| DM                   | G               | 6 | 2 | 5 | 3 | 6 | 1 | 2 | 7/3/2001   | Lemkin et al.     |  | 73    | 504.02   | 5/28/1999   |
| DM                   | H               | 6 | 2 | 1 | 2 | 3 | 0 | 9 | 4/3/2001   | Nguyen et al.     |  | 385   | 17       | 1/21/1999   |
| DM                   | I               | 6 | 2 | 0 | 1 | 6 | 2 | 9 | 3/13/2001  | McClelland et al. |  | 359   | 223      | 8/26/1998   |
| DM                   | J               | 6 | 1 | 3 | 7 | 9 | 4 | 1 | 10/24/2000 | Robinson          |  | 385   | 140      | 9/3/1998    |
| DM                   | K               | 6 | 1 | 3 | 4 | 2 | 0 | 7 | 10/17/2000 | Jerman et al.     |  | 369   | 112      | 8/17/1998   |
| DM                   | L               | 6 | 1 | 3 | 3 | 6 | 7 | 0 | 10/17/2000 | Rodgers et al.    |  | 310   | 309      | 6/24/1999   |
| DM                   | M               | 6 | 0 | 7 | 3 | 4 | 8 | 4 | 6/13/2000  | Miller et al.     |  | 73    | 105      | 7/18/1998   |
| DM                   | N               | 6 | 0 | 6 | 7 | 8 | 5 | 8 | 5/30/2000  | Clark et al.      |  | 73    | 504.16   | 5/30/1997   |
| DM                   | O               | 6 | 0 | 0 | 0 | 2 | 8 | 0 | 12/14/1999 | Miller et al.     |  | 73    | 105      | 3/23/1998   |
| DM                   | P               | 5 | 9 | 6 | 9 | 8 | 4 | 8 | 10/19/1999 | Lee et al.        |  | 359   | 298      | 7/3/1997    |
| DM                   | Q               | 5 | 8 | 6 | 7 | 2 | 9 | 7 | 2/12/1999  | Kiang et al.      |  | 359   | 198      | 2/7/1997    |
| DM                   | R               | 5 | 5 | 6 | 5 | 6 | 2 | 5 | 10/15/1996 | Howe et al.       |  | 73    | 514.16   | 12/1/1994   |
| DM                   | S               | 5 | 5 | 4 | 3 | 9 | 5 | 6 | 8/6/1996   | Nakagawa et al.   |  | 359   | 225      | 10/6/1993   |
| DM                   | T               | 5 | 5 | 4 | 1 | 4 | 3 | 7 | 6/30/1996  | Watanabe et al.   |  | 257   | 417      | 3/14/1995   |
| DM                   | U               | 5 | 4 | 0 | 8 | 7 | 3 | 1 | 4/25/1995  | Bergqvist et al.  |  | 29    | 25.41    | 11/5/1993   |
| DM                   | V               | 4 | 4 | 1 | 3 | 7 | 6 | 6 | 11/8/1993  | Webster           |  | 228   | 123      | 4/3/1981    |
| DM                   | W               | 4 | 3 | 1 | 7 | 6 | 1 | 1 | 3/2/1982   | Petersen          |  | 350   | 6.6      | 5/19/1980   |

**FOREIGN PATENT DOCUMENTS**

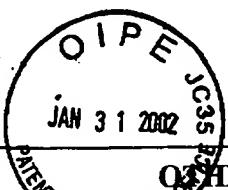
|  | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUBCLASS | TRANSLATION |
|--|-----------------|------|---------|-------|----------|-------------|
|  |                 |      |         |       |          | YES      NO |

**OTHER PRIOR ART** (Including Author, Title, Date, Pertinent Pages, Etc.)

|  |                  |                 |                |
|--|------------------|-----------------|----------------|
| EXAMINER   | <i>John Tamm</i> | DATE CONSIDERED | <i>3/14/04</i> |
| * EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |                  |                 |                |



| U.S. DEPARTMENT OF COMMERCE<br>FORM PTO-146 U.S. DEPARTMENT OF COMMERCE   |   |  |   |   |                 |         |   | AGENT DOCKET NO.<br>ONX-107A      | SERIAL NO.<br>09/810,333 |   |            |         |           |      |   |
|---|---|--|---|---|-----------------|---------|---|-----------------------------------|--------------------------|---|------------|---------|-----------|------|---|
| LIST OF PRIOR ART CITED BY APPLICANT<br>(Use several sheets if necessary)   |   |  |   |   |                 |         |   | APPLICANT<br>Behrang Behin et al. |                          |   |            |         |           |      |   |
|   |   |  |   |   |                 |         |   | FILING DATE<br>3/14/2001          | GROUP<br>2831            |   |            |         |           |      |   |
| <b>U.S. PATENT DOCUMENTS</b>  |   |  |   |   |                 |         |   |                                   |                          |   |            |         |           |      |   |
| EXAMINER INITIAL  |   | DOCUMENT NUMBER  |   |   | DATE            | NAME    |   | CLASS                             | SUBCLASS                 | FILING DATE IF APPROPRIATE  |            |         |           |      |   |
| <i>WT</i>   | A | 5  | 7 | 2 | 3               | 3       | 5 | 3                                 | 3/3/1998                 | Muenzel et al.  | 437        | 51      | 2/12/1996 |      |   |
| <i>WT</i>   | B | 5  | 7 | 2 | 6               | 0       | 7 | 3                                 | 3/10/1998                | Zhang et al.  | 437        | 228     | 1/16/1996 |      |   |
| <i>WT</i>   | C | 5  | 7 | 5 | 3               | 9       | 1 | 1                                 | 5/19/1998                | Yasuda et al.   | 250        | 306     | 1/16/1997 |      |   |
| <i>WT</i>   | D | 5  | 8 | 7 | 2               | 8       | 8 | 0                                 | 2/16/1999                | Maynard   | 385        | 88      | 8/12/1996 |      |   |
| <i>WT</i>   | E | 6  | 3 | 3 | 0               | 1       | 0 | 2                                 | 12/11/2001               | Daneman et al.  | 359        | 290     | 3/25/2000 |      |   |
| <i>WT</i>   | F | 5  | 9 | 5 | 9               | 7       | 6 | 0                                 | 9/28/1999                | Yamada et al.   | 359        | 224     | 7/28/1998 |      |   |
|   |   |  |   |   |                 |         |   |                                   |                          | <b>FOREIGN PATENT DOCUMENTS</b>   |            |         |           |      |   |
|   |   | DOCUMENT NUMBER  |   |   | DATE            | COUNTRY |   | CLASS                             | SUBCLASS                 | TRANSLATION   |            |         |           |      |   |
|   |   |  |   |   |                 |         |   |                                   |                          | YES   | NO         |         |           |      |   |
| <i>WT</i>   | G | 0  | 9 | 0 | 7               | 0       | 7 | 6                                 | A 2                      | 4/7/1999  | Europe     | G01N    | 27/00     |      |   |
| <i>WT</i>   | H | 0  | 9 | 0 | 7               | 0       | 7 | 6                                 | A 3                      | 10/4/2000   | Europe     | H01J    | 37/63     |      |   |
| <i>WT</i>   | I | 0  | 9 | 1 | 1               | 9       | 5 | 2                                 | A 2                      | 4/28/1999   | Europe     | H02N    | 1/00      |      |   |
| <i>WT</i>   | J | 0  | 9 | 1 | 1               | 9       | 5 | 2                                 | A 3                      | 4/5/2000  | Europe     | H02N    | 1/00      |      |   |
| <i>WT</i>   | K | 1  | 9 | 7 | 5               | 7       | 1 | 8                                 | 1                        | A   | 7/1/1997   | Germany | G02B      | 6/35 | X |
| <i>WT</i>   | L | 1  | 9 | 6 | 4               | 4       | 9 | 1                                 | 8                        | A   | 4/30/1998  | Germany | G02B      | 6/35 | X |
| <i>WT</i>   | M | 2  | 9 | 6 | 1               | 1       | 8 | 8                                 | 1                        | 8   | 12/12/1996 | Germany | G02B      | 6/35 | X |
| <i>WT</i>   | N | 2  | 7 | 3 | 2               | 4       | 6 | 7                                 | A 1                      | 4/10/1996   | France     | G01P    | 15/08     |      |   |
|   |   |  |   |   |                 |         |   |                                   |                          | <b>OTHER PRIOR ART</b> (Including Author, Title, Date, Pertinent Pages, Etc.) |            |         |           |      |   |
| <i>WT</i>   | O | "Electrostatic Comb Drive For Vertical Actuation" A.P. Lee et al., Proceedings of the SPIE, SPIE, Bellingham, VA, vol. 3224, Sept 29, 1997, pp 109-119   |   |   |                 |         |   |                                   |                          |   |            |         |           |      |   |
| <i>WT</i>   | P | "Design, Fabrication, Position Sensing, And Control Of An Electrostatically-Driven Polysilicon Microactuator," P. Cheung et al, IEEE Transactions on Magnetics, vol. 32, no. 1, 1 Jan. 1996, pp 122-128  |   |   |                 |         |   |                                   |                          |   |            |         |           |      |   |
| <i>WT</i>   | Q | "Optical Methods For Micromachine Monitoring And Feedback", F.M. Dickey et al., Sensors and Actuators, vol. 78, 1999, pp 220-235   |   |   |                 |         |   |                                   |                          |   |            |         |           |      |   |
| <i>WT</i>   | R | "A High Sensitivity Z-Axis Capacitive Silicon Microaccelerometer with a Torsional Suspension", Selvakumar et al., Journal of Microelectromechanical Systems, IEEE Inc., New York, vol. 7, No. 2, June 1998, pp 192-200   |   |   |                 |         |   |                                   |                          |   |            |         |           |      |   |
| <i>WT</i>   | S | "MEMS Fabrication of High Aspect Ratio Track-Following Micro Actuator for Hard Disk Drive Using Silicon On Insulator", B. H. Kim et al., Technical Digest of the IEEE International MEMS '99 Converence. 12 <sup>th</sup> IEEE International Conference on Micro Electro Mechanical Systems. Orlando, FL, Jan 17-21, 1999, IEEE International Micro Electro Mechanical Systems Converence, New York, NY, 1999, pp 53-56. |   |   |                 |         |   |                                   |                          |   |            |         |           |      |   |
| <i>WT</i>   | T | "Fabrication of Comb-Shaped Microactuator for Multi-Degrees-of-Freedom System", F. Fujikawa et al., Robotics, CIM and Automation, Emerging Technologies, San Diego, Nov. 9-13, 1992, Proceedings of the International Converence on Industrial Electronics, Control, Instrumentation and Automation (IECON), New York, NY, IEEE US, vol. 2 Conf 18, 9 November 1992, pp 990-995  |   |   |                 |         |   |                                   |                          |   |            |         |           |      |   |
| EXAMINER  |   |  |   |   | DATE CONSIDERED |         |   |                                   |                          | <i>WT</i> 1/14/04   |            |         |           |      |   |
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## OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

| PATENT NUMBER | TYPE    | REFERENCE  |
|---------------|---------|--|
| WT            | VADFMAR | "Integrated Micro-Scanning Tunneling Microscope", Xu et al., Applied Physics Letters, American Institute of Physics, New York, vol. 67, No. 16, October 16, 1995 pp 2305-2307.   |
| WT            | V       | B. Behin et al., US Published Patent Application US 2001/004874 A1, Serial No. 09/751,660 "Two-Dimensional Gimbaled Scanning Actuator with Vertical Electrostatic Comb-Drive for Actuation and/or Sensing" Filed Dec 28, 2000 (ONX-105)          |
| WT            | W       | B. Behin et al., US Published Patent Application US-002001/050801-A1, Serial No. 09/810,336 "Biased Rotatable Combdribe Devices and Methods", Filed March 14, 2001, (ONX-106A)   |
| WT            | X       | B. Behin et al., US Patent Application Serial No. 09/809,994 "Biased Rotatable Combdribe Actuator Methods" Filed March 14, 2001 (ONX-106B)   |
| WT            | Y       | B. Behin et al., US Published Patent Application US-2001/0040419-A1, Serial No. 09/809,995 "Biased Rotatable Combdribe Sensor Methods", Filed March 14, 2001 (ONX-106C)  |
| WT            | Z       | B. Behin et al., US Published Patent Application US-2002/0051014-A1 Serial No. 09/810,326 "Optical Switch Employing Biased Rotatable Combdribe Devices and Methods", Filed March 14, 2001 (ONX-106D)   |
| WT            | AA      | B. Behin et al., US Patent Application US-2001/34938-A1, Serial No. 09/810,335 "Multi-Layer, Self-Aligned Vertical Combdribe Electrostatic Actuators And Fabrication Methods", Filed March 14, 2001 (ONX-107B)                                   |
| WT            | AB      | "Vertical Comb Array MicroActuators", A. Selvakumar et al., Proceedings of the Workshop on Micro Electrical Mechanical Systems (MEMS), Amsterdam, New York, Jan 29-Feb 2, 1995, IEEE Vol. Workshop 8 Jan. 29, 1995, pp 43-48, ISBN 0-7803-2504-4 |
| WT            | AC      | "Fabrication of a 3D Differential-Capacitive Acceleration Sensor by UV-LIGA", W. Qu et al., Sensors and Actuators 77 (1999), pp 14-20, Elsevier Science, 0924-4247/99/\$ 11.95   |
| WT            | AD      | "Integrating SCREAM Micromachined Devices with Integrated Circuits", K.A. Shaw, N.C MacDonald, IEEE MEMS '96, San Diego, California 1996, IEEE Publication 0-7803-2985-6/96, pp 44-48, 1/1996  |
| WT            | AE      | "An electrostatically excited 2D-Micro-Scanning-Mirror with an in-plane configuration of the driving electrodes", H. Schenk et al., MEMS 2000, 13 <sup>th</sup> Int. Micro Electro Mechanical Systems Conf, Miyazaki, Japan, p. 473-478 (2000).  |
| WT            | AF      | "Damping of Micro Electrostatic Torsion Mirror Caused by Air-Film Viscosity", N. Uchida et al., No Date  |
| WT            | AG      | "Single Crystal Silicon (SCS) MicroMirror Arrays using Deep Silicon Etching and IR Alignment", C.S.B. Lee et al., No Date  |

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DATE CONSIDERED

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Sheet 1 of 1

| FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE  |   |                 |      |         |                                 |   |       | ATTY. DOCKET NO.<br><b>ONX-107A</b> | SERIAL NO.                 |               |     |     |            |
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| <b>LIST OF PRIOR ART CITED BY APPLICANT</b><br>(Use several sheets if necessary) |   |                 |      |         |                                 |   |       | APPLICANT<br><b>Behrang Behin</b>   |                            |               |     |     |            |
|  |   |                 |      |         |                                 |   |       | FILING DATE<br><b>3/14/2001</b>     | GROUP                      |               |     |     |            |
| <b>U.S. PATENT DOCUMENTS</b>   |   |                 |      |         |                                 |   |       |                                     |                            |               |     |     |            |
| EXAMINER INITIAL   |   | DOCUMENT NUMBER |      | DATE    | NAME                            |   | CLASS | SUBCLASS                            | FILING DATE IF APPROPRIATE |               |     |     |            |
| WT   | A | 5               | 9    | 9       | 8                               | 9 | 0     | 6                                   | 12/7/1999                  | Jerman et al. | 310 | 309 | 8/17/1998  |
| LM   | B | 5               | 9    | 6       | 9                               | 8 | 4     | 8                                   | 10/19/1999                 | Lee et al.    | 359 | 298 | 7/3/1997   |
| CW   | C | 5               | 9    | 9       | 5                               | 3 | 3     | 4                                   | 11/30/1999                 | Fan et al.    | 360 | 106 | 12/30/1997 |
| WT   | D | 5               | 3    | 1       | 4                               | 5 | 7     | 2                                   | 5/24/1994                  | Core et al.   | 156 | 643 | 4/22/1992  |
|  | E |                 |      |         |                                 |   |       |                                     |                            |               |     |     |            |
|  | F |                 |      |         |                                 |   |       |                                     |                            |               |     |     |            |
|  | G |                 |      |         |                                 |   |       |                                     |                            |               |     |     |            |
|  | H |                 |      |         |                                 |   |       |                                     |                            |               |     |     |            |
| <b>FOREIGN PATENT DOCUMENTS</b>  |   |                 |      |         |                                 |   |       |                                     |                            |               |     |     |            |
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|  | I |                 |      |         |                                 |   |       |                                     | YES                        | NO            |     |     |            |
|  | J |                 |      |         |                                 |   |       |                                     |                            |               |     |     |            |
| <b>OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)</b>    |   |                 |      |         |                                 |   |       |                                     |                            |               |     |     |            |
| K  |   |                 |      |         |                                 |   |       |                                     |                            |               |     |     |            |
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| EXAMINER <i>[Signature]</i>  |   |                 |      |         | DATE CONSIDERED <b>11/14/04</b> |   |       |                                     |                            |               |     |     |            |

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